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The role of cultural heritage in wellbeing perceptions: a web-based software analysis in two Italian provinces

Valentina Erminia Albanese*, Teresa Graziano**

Abstract

Negli ultimi decenni l'avvento del Web sociale ha scompaginato i processi di territorializzazione, le esperienze urbane e le percezioni del patrimonio culturale in modo così pervasivo che la mole sempre più consistente di dati online e narrazioni digitali può influenzare il modo in cui i territori sono percepiti. Di conseguenza, i dati estrapolati dal Web rappresentano una base informativa sempre più largamente usata per l'analisi dei territori e del loro patrimonio culturale tangibile e intangibile. In particolare, questo articolo esplora criticamente il ruolo rivestito dal patrimonio culturale nell'influenzare le narrazioni online e le percezioni del benessere territoriale in due province italiane selezionate come casi di studio. Nonostante alcune limitazioni metodologiche, la ricerca si fonda su un approccio multi-metodo che include l'estrapolazione di dati dal Web, la loro selezione, classificazione

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e analisi attraverso la metodologia della Sentiment Analysis, finalizzata a cogliere il "sentiment" (opinione) online sul patrimonio culturale locale e sulle sue implicazioni in termini di benessere collettivo. L'obiettivo principale è comparare le percezioni di territori inseriti nelle classifiche sulla qualità della vita sulla base di una serie di indicatori con quelle co-create nel Web al fine di approfondire le nuove prospettive teorico-metodologiche derivanti dall'utilizzo della Sentiment Analysis nelle indagini territoriali.

Over the last decades, the advent of social Web has been upsetting patterns of territorialization, practices of urban experiences as well as uses of cultural heritage, which are growingly mediated by ICTs so that an extraordinary repository of online data and e-discourses has been affecting the imageries which territories are built on. As a result, analysing the territories and their tangible and intangible cultural assets through data retrieved from the Web has received considerable attention as a promising method for place-based applied researches. Particularly, this paper aims at critically exploring the role of cultural heritage in influencing the online narratives and perceptions of territorial wellbeing in two Italian provinces selected as case studies. Although the Web data use is not without its challenges, the paper is focused on a multi-method approach encompassing Web data retrieval, selection, classification and analysis, in addition to an exploration based on the Sentiment Analysis approach aimed at investigating the online "sentiment" about local cultural heritage and its implications in terms of collective wellbeing in two selected Italian provinces. The main goal is to compare narratives about the interplay between cultural heritage and wellbeing in areas included in official rankings of quality of life, based on a set of indicators, with those co-created in the Web in order to provide new theoretical/methodological insights on the challenges and potentialities deriving from the use of web-based sentiment analysis methodologies in territorial research.

1. *Introduction*

Over the last decades, the Internet and the Web have given citizens unprecedented possibilities of communication and contents co-creation, which produce a huge amount of data about the spaces in which they work, live and visit. In an era of ever-increasing user-generated contents, digital data sources provide researchers with new theoretical and methodological frames (and challenges), particularly in urban studies[1].

The advent of the social Web has been recently upsetting patterns of re-territorialization, practices of urban experiences as well as narratives about spaces and places so that an extraordinary repository of online data has been affecting territorial images and imageries. As a result, analysing spaces through quali-quantitative data retrieved from the Web has received considerable attention as a promising method for place-based applied researches focused on several aspects of life, ranging from sustainability to territorial wellbeing and cultural heritage.

As Sánchez-Rada and Iglesias[2] put it, a growing number of researchers of

1 Paradiso 2003; Arribas 2014; Agryzkov *et al.* 2016; Sloan 2017.

2 Sánchez-Rada, Iglesias 2019.

different fields have been paying growing attention to thoughts and opinions shared in the Web within a wide audience in order to scrutinize bottom-up narratives and perceptions on a broad range of phenomena. In addition to manual content analysis, often focused on very narrow topics, researchers increasingly use software-based tools to process wider amounts of data.

Sentiment Analysis (S.A.) is one of the methodologies growingly used in social sciences. Originally applied for marketing analysis by several companies to explore consumers' opinion on their brands[3], this interdisciplinary methodology crossing natural language processing, artificial intelligence, and text mining[4] is an effective tool to recognize opinions, attitudes and emotions of individuals expressed in online texts. Unlike manual content analysis, S.A. is an automated process based on a sentiment dictionary and a software to analyze wide data sets, including social media.

Over the last years, S.A. has been applied in a plethora of disciplines, ranging from economics to urban planning, and it has been particularly used as an analytical tool in geography, urban and tourist studies to scrutinize citizens' and/or tourists' perceptions and opinions about territories[5].

The huge increase in social media use has transformed the Web as a platform of growing expression and opinion sharing on a broad range of topics[6], which is providing researchers with new sources of information about a given issue such as for instance political elections[7], natural disasters, happiness or even the emotions triggered by green space experiences[8]. Some scholars have used S.A. of opinions about a given topic by comparing different geographic areas and consequently spatializing the results of the analysis. For example, Quercia *et al.* (2012)[9] compared opinions expressed in differently geotagged tweets related to different areas of London, and found a strong correlation between higher socio-economic variables and a positive sentiment.

With the aim of testing S.A. methodology at the interplay between urban wellbeing and cultural heritage, this article critically explores narratives and perceptions about cultural heritage and their influence on wellbeing by examining the ways through which online users express their feelings and opinions about the role of cultural heritage in influencing the perception of territorial wellbeing. Although social media data use is not without its challenges, the work is focused on a multi-method approach encompassing web-based data retrieval, selection, classification and evaluation through a software-based sentiment analysis methodology aimed at exploring the online "sentiment" (opin-

3 Pang, Lee 2008.
4 Hollander, Renski 2015.
5 Roberts *et al.* 2018; Albanese 2017.
6 Pak, Paroubek 2010; Zhang 2011.
7 Bruns, Burgess 2011; Gordon 2008.
8 Quercia *et al.* 2012; Fleuret, Prugneau 2015.
9 Quercia *et al.* 2012.

ion) on cultural heritage and wellbeing in two Italian provinces. The provinces were selected from a national ranking on the quality of life published every year by a business newspaper foundation (*Il Sole 24 ore*). The main goal is to compare official narratives about the role of cultural heritage in influencing urban wellbeing deriving from a set of quantitative indicators with bottom up perceptions retrieved from the web. In so doing, the paper provides new theoretical-methodological insights both on how digital research methods are evolving and how everyday digital practices themselves are shaping our perceptions about cultural heritage and its implications in terms of quality of life.

The article is organized as follows: the second paragraph deals with a theoretical overview on the interplay among cultural heritage, territorial wellbeing, perceptions and social media; the third paragraph deals with a quantitative desk analysis of the territories selected; the fourth deepens the methods used, by explaining what S.A. is, why it can be used in social sciences and what has been the specific methodology steps of the research, also including the software-based analysis and the related results; the discussion and final conclusions are included in the last paragraph.

2. *Perceived Wellbeing, Cultural Heritage and the ICTs: an overview*

Wellbeing has recently become a theme of major interest across several disciplines, included geography. The first development of a specific branch of geography focused on wellbeing is embedded into the growing use of it as a governing policy concept[10]. Geographers began examining the various aspects of wellbeing within a wide range of sub-disciplines, ranging from health geography to social and environmental approaches. As Fleuret and Prugneau[11] put it,

> The concept of wellbeing demands an inter-disciplinary approach, drawing on the economic sciences through to the social and cognitive sciences, and reflecting the complexity of wellbeing which makes it so difficult to grasp […]. The evolution of the 'young' geography of wellbeing can be characterised as a double transformation: from space as a container to space as an active agent in the shaping of wellbeing, and from place as a location to place as, simultaneously, landscape, centre of societal activities and nexus of shared and personal meaning.

Apart from quantitative "mapping" based on indicators, wellbeing has been often scrutinized through qualitative methodologies in order to explore its subjective implications. Regarded as a crucial issue for the articulation of spatialized social policies, wellbeing is still today a controversial and elusive

10 Atkinson, Fuller, Painter 2012.
11 Fleuret, Prugneau 2015, p. 111.

notion, due to both individual and collective interactions it encompasses[12].

This lack of a homogenous theoretical framework is consequently mirrored by the often-conflictual conceptualizations and operalizations of the term, which can be categorized in three main strands: the theory of needs, the relative standard theory and the capabilities approach. Synthetically, while the first is structured around the assumption that satisfying individual needs is the prerequisite to wellbeing, following a hierarchy of needs (security, belonging, recognition, self-transcendence), the second perspective tries to overcome some limitations of the previous, such as the identification of wellbeing with a homogeneous utility. Thus, the relative standards theory draws attention on the subjectivity and relativeness of wellbeing, stating that objective conditions are related to wellbeing in comparison with other possible conditions.

As the Fleuret and Atkinson[13] highlight, "Wellbeing is therefore linked to individual happiness and conditioned by the individual's perception of the context in which he or she is living. As a result, its 'absolute' value (position felt and defined through comparison) has very little impact at the level of society". Being a multi-faceted and elusive concept[14], wellbeing poses several methodological challenges to the point that the Authors[15] developed an interdisciplinary multi-layered framework of the spaces of wellbeing. They try to go beyond the limitations of the above-mentioned theoretical strands by adopting a theoretical and methodological framework which include two overlapping perspectives: an objective dimension of wellbeing refers to quality of life both individually and collectively; a subjective dimension mirrors individuals' goals, cultural values and perceptions.

The framework assumptions are numerous: first, it identifies a hierarchy of needs, distinguished in primary or basic needs and personal fulfilment at the opposite pole. Second, wellbeing should be always contextualized to a very contingent dimension, strictly dependent on the individual perceptions of equivalent material conditions; third, wellbeing is not only dependent on the individuals' capacities and ambitions, insofar as the freedom to choose and the conditions to realise such choices are situation-dependent. In spite of being used to scrutinize the individuals' contextual dimensions influencing their wellbeing, the framework is regarded as a highly adaptable tool aimed at capturing what Atkinson *et al.*[16] define as the "contextualised influences" on "individualized wellbeing".

It should be highlighted that even though wellbeing can be understood and conceptualised in many different ways, individualistic understandings – wellbeing as a property of individuals or a state in which they reside – has become especially popular with the rise of neoliberalism

12 Fleuret, Prugneau 2015; Fleuret 2007; Fleuret, Atkinson 2007.
13 Fleuret, Atkinson 2007, p. 119.
14 Fleuret 2012; Fleuret, Atkinson 2007.
15 *Ibidem*.
16 Atkinson, Fuller, Painter 2012.

across the global North […] Wellbeing cannot be understood if the constant, complex, recursive interplay between individuals and their spatial contexts is ignored[17].

The framework relies on the assumption that collective dimensions of wellbeing can be spatialized. Thus, spatial contexts continuously re-shape and mediate the individual perceptions of wellbeing[18].

As Hollander and Renski (2015)[19] highlight, wellbeing is a multifaceted concept that mirrors the status of a community more effectively than the mere economic indicators that are usually employed, as far as it includes social relationships and physical health. A similar concept, namely "quality of life", includes overlapping processes related to human communities, natural environment and economic dynamics[20].

In a wider sense, the concept of collective wellbeing overlaps with that of liveability, defined as the set of "desires related to contentment of life in a specific location"[21] and as a "behaviour-related function of the interaction between environmental and personal characteristics"[22]. Generally, collective wellbeing, quality of life and liveability in urban contexts refer to cities which are socially inclusive, accessible, healthy, safe, affordable and sustainable to the point to be attractive from the socio-economic and environmental point of view[23].

Apart from being a deeply subjective issue, wellbeing has become a crucial topic in the aftermath of the neoliberal shift in the Global North[24]. It has become the new "mantra" of local territorial agendas as well as a buzzword in several place branding strategies aimed at making cities and their surrounding areas more competitive in the todays' global market by establishing a reputation for themselves[25]. As Yea and Björnerb[26] put it, in several western metropolitan areas the neoliberal turn in urban governance and the upsurge of "the entrepreneurial city"[27] are growingly connected to place branding as a crucial strategy of governance to stimulate urban development[28]. Within these branding strategies, a livable, smart and sustainable city, which systematically pursue collective wellbeing, has become a recurrent brand image.

So, wellbeing is not only an objective of sustainability-oriented territorial agendas, but it has also become an instrumental tool for cities and more generally territories to attract exogenous investors, new city users, tourists and residents.

17 Fleuret, Atkinson 2007, p. 112.
18 Atkinson 2013.
19 Hollander, Renski 2015.
20 Van Kamp *et al.* 2003.
21 De Chazal 2010.
22 Pacione 1990.
23 Hankins, Powers 2009.
24 Binkley 2011.
25 Anholt 2010.
26 Yea, Björnerb 2018.
27 Greenberg 2008; Harvey1989; Hall, Hubbard 1998.
28 Anttiroiko 2015.

What is more, whilst since the late 1980s citizens have been regarded as passive beneficiaries of public goods and services, they have recently experienced a shift towards a co-producer status. As a consequence, they are not just a "target" of branding strategies[29], but they increasingly play such an active role in co-producing the image of the context in which they live that their opinions and perceptions are considered as crucial in planning local agendas.

2.1. *Cultural heritage and wellbeing*

The interplay between place branding and wellbeing is particularly evident if we take into account the role of cultural heritage both in increasing quality of life as well as influencing the territorial imageries which shape branding strategies. As a matter of fact, cultural heritage is a constantly changing conceptual framework which traditionally includes single monuments such as as architectures, monumental sculpture and painting[30]. However, over the last years the term has been used to indicate a complex range of territorial systems, landscapes, itineraries and intangible heritage which make it a multidimensional issue, whose complexity is further emphasized by the peculiarities of services and functions which characterize cultural markets[31].

Several scholars underline the role of cultural heritage as a driver of economic and social development in terms of urban regeneration[32], contribution to local identity reinforcement and competitiveness in global markets[33], development of local communities and satisfaction of human needs[34]. Furthermore, the wide range of intangible attributes of cultural heritage are considered essential to contribute to local sustainability and consequently to quality of life[35].

As Power and Smyth[36] (2016) put it, in the field of health geography much emphasis has been put on the beneficial physical and mental health effects of participating in community-based activities, although less interest has been in the potential of cultural heritage in terms of positive effects in people's lives.

By considering cultural heritage as a multifaceted and articulated range of tangible and intangible elements, the benefits in terms of collective wellbeing include generating a closer relationship with one's local area, fostering a strong sense of place and belonging and awareness of historical/cultural significance (*ibidem*).

29 Braun, Eshuis, Klijn 2014.

30 UNESCO, World Heritage Convention (1972), <https://whc.unesco.org/en/conventiontext/>, last view on 23.11.2021.

31 Ferretti *et al.* 2014; Guzman *et al.* 2014.

32 Evans 2005.

33 Scheffler *et al.* 2009.

34 Tweed and Southerland 2007.

35 Bond *et al.* 2004; Nijkamp, Riganti 2008; Bandarin, Van Oers 2012.

36 Power, Smyth 2016.

Over the last years, several scholars have highlighted the osmotic relationship between wellbeing and cultural heritage, including the impact of archaeological excavations on happiness, the therapeutic benefits of community-based heritage conservation, and the role of the aesthetic experience of heritage in reducing stress.

As Taçon and Baker[37] (2019) put it,

> While well-being is rarely indexed in major heritage handbooks or readers, there is a growing body of literature indicating that cultural heritage, including rock art, ancient architecture, written heritage, material culture and intangible cultural practices, is very important for contemporary well-being for diverse groups of people.

More specifically, museums and archives act as "third places" where is it possible to activate a collective sense of wellbeing, by adopting a "non-market valuation approach, known as "Wellbeing Valuation", that relies on people's self-reported wellbeing and that offers a solution to many of the anomalies observed in preference-based valuation methods". In this vein, Fujiwara *et al.*[38] argue that visiting heritage sites has a relevant impact on wellbeing:

> it can be seen that connections between heritage and well-being are being made across the arts, humanities and social science disciplines, as well as the fields of health and medicine, demonstrating that heritage has contemporary value not just in economic, historic or cultural terms but also as something that contributes to human welfare"[39].

Drawing upon this well-established literature and the above-mentioned frameworks of wellbeing, we propose to widen it from the theoretical and methodological point of view by including a fourth layer to it, which refers to the digital sphere both as an analytical source to provide new insights on the interplay between wellbeing and cultural heritage in urbanized contexts; and as a source of data to be scrutinized insofar as social media continuously reshape the ways in which the relationship between wellbeing and cultural heritage is continuously reshaped.

2.2 *Using Web data to explore cultural heritage-wellbeing links*

Whilst there may be an implicit recognition that culture and cultural heritage are fundamental for sustainability and personal/collective wellbeing, the challenge is to empirically demonstrate their impacts especially when the existing measuring frameworks, tools and rankings take into account financial/economic benefits, rather than non-market elements such as social cohesion, quality of life, perceived wellbeing.

[37] Taçon, Baker 2019, p. 1301.
[38] Fujiwara *et al.* 2014.
[39] Taçon, Baker 2019, p. 1302.

In general, assessing collective wellbeing is an arduous task. The most traditional approaches of analysis have deeply explored the multifaceted and complex character of wellbeing, such as those based on territorial social indicators, or those investigating socio-spatial inequalities in wellbeing[40]. While on an individual scale wellbeing can be easily measured with a survey or questionnaire, this would be cost/time-prohibitive to carry out on a large scale. As a result, a growing number of researchers and/or policy makers rely on online sentiment analysis of social media contents for small locally-based communities, on a national scale and, in particular, in urban and territorial studies.

What is more, the task is even more complicated if we measure the strength of the heritage/well-being relationship, insofar as their connections are rarely supported by quali-quantitative evidence[41].

As a result, the techno-mediated narratives about the relationship between cultural heritage and territorial wellbeing can represent a valuable source of information to explore to what extent online perceptions are shaped in social media by influencing – and being influenced by – territories[42]. As Arribas-Bel *et al.*[43] put it, urban big data may be fruitful sources of information to map out spatial patterns of urban functions as well as practices of re-territorialization, "effectively connecting the digital with physical aspect of cities".

Web data represent a set of information sources for a methodological advance in territorial analysis. This is due to the ease in which data collection and retrieval can be carried out by overcoming some of the constraints typically associated with traditional methods, such as collection time or large surveys[44]. Crowdsourcing tools and processes (from geo-referenced social networks to volunteered geographic information) are increasingly used for scrutinizing urban data since they involve a larger percentage of users. Social media data enable the in-depth exploration of intangible aspects of territories, particularly those related to cultural heritage[45].

Furthermore, web-based data are generally co-created by users without being constrained, so that the information they produce can be collected "unobtrusively".

As Kovacs-Gyori et al[46] put it,

> traditional methods, such as questionnaires or counting, are not capable of handling such fine temporal and spatial scales at all, or they are highly resource-consuming and, therefore, slow and costly, and thus not up-to-date. This is where the advantages of the data-driven era become relevant, most concretely with respect to the real-time availability of social media data. This data provides unseen contextual insights into spatiotemporal phenomena on a finer scale in cities through users' digital traces on different online platforms.

40 Smith 1973; Pacione 2003; Ballas 2013.
41 Sayer 2018.
42 Graham 2015.
43 Arribas-Bel, Kourtit, Nijkamp, Steenbruggen 2015.
44 Lee *et al.* 2013; Graham *et al.* 2014; Martì *et al.* 2019.
45 Cerrone 2015, Saker 2016.
46 Kovacs-Gyori *et al.* 2018, p. 76.

Web-based data use can provide a direct feedback about city life-related topics, specific places, urban-based phenomena, cultural elements included[47], by providing new insights for more effective territorial planning, cultural heritage management and place branding strategies.

This is due to what Boy and Uitermark[48] define as a "seismic shift", which implies that the power of representing the city is "no longer concentrated in the elites controlling the state and mass media, but is distributed as people use their smartphones to produce and circulate messages of their own making". With regard to this, living in an era of "perpetual connectivity"[49], the authors wondered how people represent the city on social media and how these web-based narratives feed back into people's uses of the city.

Among different web-based methodologies, Sentiment Analysis (S.A.) is growingly used for the analysis of territory-related issues. Several scholars use geotagged Twitter data in order to scrutinize how the sentiment varies within different areas of a city about a given topic, to investigate mobility over time and space, and to evaluate land use in urban environments[50].

In the cross-disciplinary field of wellbeing studies, S.A. has been used by Mitchell *et al.* (2013)[51], who evaluated the different sentiment of happiness in urban contexts within the United States and compare the results to a set of other indicators of well-being, included census data.

Apart from wide-range quantitative analysis, S.A. can be also used in closer studies in terms of structure, research goals and scale, often intertwined with manual content analysis. Hollander *et al.* (2014)[52], for instance, scrutinized Twitter data about child and family policies within a specific urban area.

Since S.A. can provide useful information about territory-related topic, following Mitchell *et al.* (2013) we adopt a place-based case study to explore how the sentiment about the interplay between cultural heritage and territorial wellbeing is expressed online, trying to advance research through an innovative method of web-based analysis combining data extraction/validation and quali-quantitative content analysis.

As a result, this paper scrutinizes to what extent a web-based methodology such as the S.A. can be a useful tool to explore online narratives about the perception of wellbeing related to cultural heritage, by evaluating both its advantages and theoretical-methodological limitations. Since at the policy level wellbeing is traditionally evaluated as a collective macro-category made of a set of quantitative indicators, we try to understand if the S. A. can mirror some nuances of individual perceptions about the role of cultural heritage in fostering collective

47 Resch 2016; Girardin *et al.* 2009.
48 Boy, Uitermark 2017, p. 612.
49 Castells 2009.
50 Antonelli *et al.* 2014; Bollen *et al.* 2011; Aubrecht *et al.* 2011; Sagl *et al.* 2013.
51 Mitchell *et al.* 2013.
52 Hollander *et al.* 2014.

wellbeing, which is traditionally underrepresented in traditional rankings on quality of life in urbanised areas.

3. *The study areas*

3.1 *Two provinces at the top and the bottom of rankings*

We selected two Italian provinces included in the quality of life ranking issued by the *Il Sole 24 ORE*, an Italian renowned economic-financial newspaper based in Milan, the most influential in its sector. Since 1990, the ranking classifies the Italian provinces according six parameters: wealth and consumption, business and labour, environment and services, demography and society, justice and security, culture and leisure.

For this paper, we referred to the 2018 version (retrieved from <https://lab24.ilsole24ore.com/qdv2018/indexT.html> on Mars 2021). According to this ranking, the province of Milan in the northern region of Lombardia is ranked first, due to some variables such as income, labour and services, but especially for bank deposits per capita and good employment rates. On the contrary, the province of Vibo Valentia, located in the southern region of Calabria, is ranked last, due to low-rate services and income variables.

In 2019 rankings led results very similar to 2018 insofar as the province of Milan was ranked first and Vibo Valentia on the 103 position over 107. We did not take into account the 2020 edition since the results were partially influenced by the pandemic, which particularly affected the Lombardia region and specifically the province of Milan.

3.2. *A desk quantitative analysis of cultural heritage and wellbeing in the selected provinces*

Our multi-method approach was based on a first stage of analysis based on a "traditional" desk methodology, aimed at retrieving quantitative secondary data from a repertoire of informational sources in order to frame the role of cultural heritage in the two selected study areas.

The provinces of Milan and Vibo Valentia are inserted in wider territorial systems which are completely different in terms of demographic profiles (table n. 1), mobility flows, relations within global networks and economic performances, by mirroring the deeply-rooted territorial gaps which have historically split the country in the more advanced Northern regions and the less advanced Southern

ones. As several sources highlight[53], on the one hand the province of Milan[54] has recorded an increase in population rates due to migratory flows (+ 20.000 people between 2018 and 2019) over the last two decades, which is reflected into higher mobility rates of its local job system, the widest in Italy as for the amount of flows[55]. This is strictly intertwined with the higher attractiveness of its articulated economic system, increasingly driven by cultural and creatives industries. The Milan metropolitan area is ranked first in Italy for the role of its cultural and creative productive system in the local economy (10,1%, with an employment level of 10,3%), and second, after Rome, for the culture-driven tourist expenditure[56]. On the other hand, the province of Vibo Valentia has registered a progressive decrease in population rates since 2001, like in other Southern areas, and it is ranked in the final part (second/third last) of rankings with regard to territorial wellbeing and cultural and creative sectors[57].

Data (2019)	Metropolitan Area (former province) of Milan	Province of Vibo Valentia
Population	3.265.327	154.715
Demographic evolution	+0,25% (2002); +0,47% (2019)	-0,34% (2002); -1,06% (2019)
Surface	1.575,65 km2	1.150,64 km2
Demographic density	2,072	134,46
Number of municipalities	133	50
Population of the main city	1.406.242	31.451

Tab. 1. The demographic profiles of the selected provinces (Source: ISTAT 2019)

Drawing on the *Il Sole 24 ore* ranking, we retrieved from the general index of "quality of life" the indicators that are more consistent with our research: culture & leisure; bookshops; cinema; cultural offer; live events. As the table n. 2 shows, apart from two indicators, Milan is always ranked within the first twenty positions over the 103 provinces analysed, while Vibo Valentia is at the bottom of the ranking, the indicators on bookshops excluded.

53 ISTAT 2019; <https://www.istat.it/it/benessere-e-sostenibilit%C3%A0/la-misurazione-del-benessere-(bes)/il-bes-dei-territori>; Camagni, 2020.

54 Since 2015, 15 Italian provinces, included the province of Milan, were renamed as "metropolitan areas". In this paper we deliberately keep the old denomination in order to avoid confusion between governance and territorial levels.

55 ISTAT 2019.

56 Symbola 2019.

57 *Ibidem*.

2018 – Indicators *Il Sole 24 Ore* Ranking	Position of the Metropolitan area (former province) of Milan	Position of the Province of Vibo Valentia
Culture and leisure	10th	103rd
Bookshops (1/100.000 inhabitants)	43rd	24th
Cinema (1 place/100.000 inhabitants)	34th	107th
Cultural offer	20th	105th
Live events	3rd	107th

Tab. 2. Comparison between the positions of Milan and Vibo Valentia with reference to heritage and culture (Source: "Qualità della vita 2018" retrieved from <https://lab24.ilsole24ore.com/qualita-della-vita/classifiche-complete.php>, 2019)

4. *The Sentiment Analysis: a methodology to explore virtual narratives of places and heritage*

The Sentiment Analysis can be defined as the activity of detection, extraction processing and classification of information related to a given topic through a language processing software[58] that can be a useful tool to collect data about opinions and attitudes circulating in the Web. "The object of this analysis has typically been a product or a service whose review has been made public on the Internet. This might explain why sentiment analysis and opinion mining are often used as synonyms"[59]. Strictly linked to the concept of opinion mining, it was first introduced by Dave *et al.* (2003)[60] to indicate a technique capable of elaborating a search base on keywords, in order to "listen to" and organize data retrieved from the Semantic Web, an extension set according to the standards of the World Wide Web Consortium (W3C) aimed at making Internet data machine-readable through a wide range of technologies, tools and research methods usually used to represent metadata and provide a common framework which allow data to be shared and reused.

For each term automatically selected by the software, S. A. can identify attributes or polarities – positive, neutral, negative – mirroring the users' feelings and perceptions about a specific issue. Once the distribution of the attributes is aggregated, it becomes possible to "extract" the opinion associated with each of them[61].

The methodology is set at the end of the web monitoring process and was defined by Liu[62] as a set of textual analysis techniques aimed at the computational

58 Nasukawa, Yi 2003.
59 Mäntylaï, Graziotin, Kuutila 2018, p.17.
60 Dave, Lawrence, Pennock 2003.
61 Ceron, Curini, Iacus 2014.
62 Liu 2006.

study of opinions, evaluations, attitudes and emotions about a specific topic.

Bo Pang and Lillian Lee's *Opinion Mining and sentiment Analysis*[63] is the theoretical-methodological pillar of S. A. The authors highlighted how what others think and feel has always been a meaningful information during the decision-making process. Long before the World Wide Web, most of us asked our friends for advice on what to buy, for instance. More recently, the Internet and the Web have allowed us to know the opinions and experiences not just of friends and acquaintances but of other internet users who are perfect strangers, but who share our interests. Opinion mining technologies were first used for the analysis of the semantic web aimed at retrieving data directly related to consumer behaviour or political preferences to better target advertising. Much more rarely, however, and only in more recent times, scholars of different disciplines have been developing an interest in the *digital footprint*, namely the "traces" that people leave online, as a means for investigating several topics in social sciences domain.

As far as tourism research is concerned, for instance, Aalei *et al.*[64] highlight that

> It is timely to examine how tourism researchers are making use of these data, and whether these new types of data form a part of a new research paradigm that entails novel methodologies and has the potential to further advance our theoretical understanding of tourism. To date, online data sources have mainly been used in applied research, whereby advantage was taken of the large and often free-of-charge volumes of data, which provide insights into activities of the tourism/travel industry and its customers.

Over the last years, S. A. has been widely used to investigate the online narratives describing or evoking different territories[65], as a tool to deconstruct how territories are represented, perceived and shared through the new technologies, both from the above, for marketing reasons (in top-down territorial branding strategies) and from the below, by online users. Social media offer a multitude of semantic data that allow a qualitative analysis of the cognitive and emotional dimension in relation to the practices of a specific place.

Usually S. A. can be a manual process or it can be supported by softwares specifically designed for the semantic analysis, the Sentiment Analysis Systems (SAS), based on the intelligent scanning of social networks. The advantage of a manual approach is that very accurate results can be obtained, however only small amounts of data can be analysed. On the contrary, the software encompasses a higher, but reasonable, margin of error in its semantic interpretation, but it can analyse a larger amount of data. In his *Synthesis Lectures on Human Language Technologies*[66](2012, p.1), B. Liu wrote:

63 Pang, Lee 2008.
64 Alaei, Becken, Stantic 2019, p. 175.
65 Albanese 2017.
66 Liu 2012.

Sentiment analysis and opinion mining is the field of study that analyzes people's opinions, sentiments, evaluations, attitudes, and emotions from written language. It is one of the most active research areas in natural language processing and is also widely studied in data mining, Web mining, and text mining. In fact, this research has spread outside of computer science to the management sciences and social sciences due to its importance to business and society as a whole. The growing importance of sentiment analysis coincides with the growth of social media such as reviews, forum discussions, blogs, micro-blogs, Twitter, and social networks. For the first time in human history, we now have a huge volume of opinionated data recorded in digital form for analysis.

There are different approaches to sentiment analysis in social media. In this paper we use the opinion polarity: positive, neutral, or negative sentiment towards a specific research topic. Traditionally S. A. is used in product marketing strategies, while we apply it to analyze the sentiment towards a place.

After a keywords selection, it is possible to know which are the virtual places where the "conversations" useful for the research design occur. For each conversation, it's possible to gather data through the software and manage them with a dashboard.

So, in this paper, we used S. A. to scrutinize how the concept of wellbeing, on which city rankings are usually based, can be compared with the quality of life perceived by citizens and/or city users in two selected Italian provinces.

4.1 *The role of cultural heritage in wellbeing online perceptions*

This empirical part scrutinizes the challenges, critical aspects and limitations of using new tools and methodologies to deconstruct the ways through which online users shape their own perceptions of the place in which they live, with a specific focus on the role of cultural heritage in influencing wellbeing. The main aim is to understand to what extent the perception of the wellbeing, inferable from the data acquired from the semantic web, can be influenced by the extent and quality of the local cultural heritage as well as being consistent with the top-down representations of places.

The specific semantic software used for the analysis is called *App2check*. The analysis usually includes a first stage of manual "listening" of online "conversations", namely a manual content-based opinion mining which evaluates the online exchange of opinions among users.

This is aimed at understanding the general "sentiment" (opinion) on a given topic. By taping a set of key-words related to the research topic in a Web or social media search engine, the manual "listening" allows the researcher to explore the online conversation "ambiances", so that he/she can build a sort of "online conversations framework". The key-words used were *name of the city* AND Quality of life; *name of the city* AND well-being. Secondly, we use

a different set of keywords related to cultural heritage: *name of the city* AND culture; *name of the city* AND heritage.

Through these keywords, we "accessed" the virtual places useful for collecting comments.

Eventually, we selected a corpus of 58 online textual and video sources (with a high number of comments for each social media source) retrieved from the first ten pages of Google with reference to the macro-theme of urban wellbeing, while a corpus of 18 sources was selected for the macro-theme of cultural heritage. We selected Google as a search engine because it is the most popular search engine and consequently it is easier to access the "conversation ambiances" occurring in social media such as Youtube, Instagram, Facebook, Twitter and other forum rooms selected by topics. We also "listened" (monitored) the most popular pages on the web because they represent the "voices" of the Web. After the 10th page there are irrelevant links which don't contribute to foster the so-called e-WOM, the electronic word of mouth. So, in Google we selected the conversation "ambiances", namely the social media where the software-based analysis has been carried out. At the end, the social media from which we retrieved data were Facebook, YouTube and Instagram because they are those containing the greatest number of interactions among users.

After having identified the useful comments in the social media selected for analysis, in the second phase the software-based analysis was carried out. The software goes through a process of *splitting* the sentences, by dividing them into as many segments based on the number of adjectives or feelings expressed. Thus, the topic extraction takes place, so that the most commonly discussed topics are isolated from the overall corpus of data. Topic extraction produces the so-called *tags clouds*, which show the polarization of online reviews and social media texts selected in the first phase of the research.

After having collected and selected the sentences and words to be analysed, the evaluation of the "sentiment" takes place. The sentiment ranges from 0 to 5, with zero indicating absolute negativity and 5 absolute positivity. Finally, the software provides some dashboards that connect the sentiment of different topics to a geographic location, the volume of comments and the content of online opinions. From the dashboard onwards, it is the researcher who extrapolates the conclusions of the semantic data retrieved through a manual content analysis.

The sentiment analysis algorithm used is based on Breen's work[67]. Sentiment scores were assigned to sentences by calculating the difference between the number of words containing a positive sentiment and the number of words having a negative meaning.

In general, the positivity of a sentence is assumed when the score value is higher than zero, the negativity is assumed when the score value is below zero and neutrality when the score is equal to zero. Owing to the limitations of the

[67] Breen 2012.

software in assuming unambiguous negative or positive scores for sentiment values around zero, we decided to assume a positive sentiment when the score is equal or higher than 2, whilst negative sentiment with the score equal or lower than –2.

4.1.2. *Results*

Figure 1 shows the tag cloud extracted by the S.A. software for the province of Milan. With reference to the quality of life of the city and its surroundings, the online most discussed topics are those related to environmental and ecological issues. Users' greatest satisfaction with the city depends on the vibrant leisure industry and the "urban green turn" that Milan has been recently experiencing, which has a positive impact on the whole province: this is mirrored by the most recurring hashtags which indicate bottom-up, voluntary actions aimed at making the city cleaner and, in general, pursuing ecological goals (*volunteer, cleaning, change, actions*).

The green colour indicates that those topics are placed in sentences with a positive sentiment. The average value of the sentiment, on a scale from 0 to 5, is around 3.7 and therefore certainly above the neutral value (2.5) but not very close to the maximum satisfaction, that is 5. This is because the discussion on the quality of life in the province of Milan is mainly aimed at understanding the ecological footprint of the city, as demonstrated by a manual content analysis done during the data collection by keywords (I.g.: "I love Milan bur traffic and pollution needs a quick resolution or we'll smuggy" is a sentence retrieved during the manual content analysis, which underlines the critical elements which still affects the city).

At the bottom of the ranking is placed the province of Vibo Valentia, in the South-West of the Italian peninsula. While in the *Il Sole 24 ore* official ranking the city and its surroundings recorded a negative and constant trend over time, the S. A. is irregular, both in the words used in social media to describe the city (Figure 2), and from a diachronic point of view (Figure 3). In fact, over time, opinions about the province jump up and down from the neutral line that stands at the value 2.5.

As shown in Figures 2 and 3, online opinions on the province are complex and multifaceted. There is often a recurring reference to the education system, with an average sentiment with regard to children and to positive emotions ("school"; "love"; "together"; "quality") with an equally positive sentiment. What is striking is that in the perceptions of city experiencers there are only a few aspects of negativity, as demonstrated by fig. 3 and 4, where the tag cloud shows just two red words, thus indicating a negative polarity. This evidence suggests that although being formally ranked at the bottom for quality of life, the city is perceived and narrated online in a more nuanced way.

As far as cultural heritage is concerned, in fig. n. 5 and 6 a neutral sentiment is prevailing, with reference to some recurring topics such as "culture", "cultural", "call for application", "museums" and so on.

Although an extended analytical work to filter and select comments, in the following tag cloud (fig. 5), some Covid-related comments still arise since they are connected to other comments including useful information about the cultural capital of the city, so that we decided to include them in the analysis.

In the fig. n. 6 a neutral sentiment with reference to culture can be detected, counterbalancing negative and positive positions expressed in the comments. Topics such as "tourist", "art", "houses", "guide" are the only ones attracting more positive comments. This analysis highlights to what extent a different perception about cultural heritage differentiates the two cities and their related territories: whilst in the case of Milan the interest is catalysed by cultural elements connected to art, as far as Vibo Valentia is concerned, as we'll see in detail in the following paragraphs, the most attracting values emerging from the sentiment analysis are landscape and natural elements.

In the *Il Sole 24 ore* city ranking the province of Milan is portrayed as a territory where the quality of life is very high, whilst Vibo Valentia is the contrary. Nevertheless, as demonstrated by the manual listening carried out in the first stage of the empirical analysis, Vibo Valentia and its surroundings are often depicted online as a beautiful territory: "It could be in the last position but nobody can deny its beauty" is the most emblematic comment retrieved from the manual content analysis about city users' perceptions on the city.

As a matter of fact, Vibo Valentia cultural heritage attracts a very positive sentiment, which revolves around the 4 value in a range between 0 and 5. Very positive attributes are identified with reference to natural and landscape elements and, consequently, to topics such as "village", "sea" and so forth. As demonstrated by fig. 7 and 8, the most relevant unifying element in the comments analysed incorporates a positive perception (symbolized by the green area in the tag cloud) of places, landscape, nature, seen as relevant elements referred to local identity. Negative attributes are just a few and consequently not relevant for the semantic analysis, as demonstrated by the fig. 8 which expresses the average of opinions within the temporal range considered.

The comments on the beauty of Vibo Valentia territory align with Korpela's view[68]: "The place itself or the objects in the place can remind one of one's past and offers a concrete background against which one is able to compare oneself at different times… this creates coherence and continuity in one's self-conceptions".

All in all, rankings can be useful tools for policy makers and local institutional actors to reinforce hegemonic narratives, acting as "an important empirical base for disclosing comparative advantages and sharpening specific profiles

[68] Korpela 1989, p. 251.

and consequently for defining goals and strategies for future development"[69] as well as within marketing strategies to increase urban competitiveness. However, they do not influence the perceptions that citizens and/or city-users have on their own territories. The relationship between local communities and places where they live is so deeply rooted and multifaceted that rankings do not influence those who have a long-established relationship with a territory. Thus, quality of life rankings based on quantitative data are increasingly criticised in literature[70] and seem increasingly instrumental to a narrative, often boosted by media, which does not coincide entirely with the vision of those who live in and experience the city. Thus, the so-called "economics of happiness" has shown for some years now the connection among external events, socio-environmental changes included, and subjective well-being[71].

5. *Discussion and final considerations*

As Fleuret and Atkinson put it[72], the increasing diffusion of wellbeing across different contexts, ranging from quantitative rankings to territorial branding and transcalar policies, mirrors its wide appeal which partially stems from its semantic elusiveness which makes it a flexible concept, variously used by a wide range of actors. Its elusiveness is further emphasized if we take into account the specific role played by cultural heritage in influencing the perceived wellbeing. Although the implications of cultural heritage in terms of wellbeing are several, such as fostering connections with the past; providing social interaction and increasing cohesion; developing a collective sense of belonging, community, equality[73], nonetheless it is difficult to analyse them through traditional methodologies.

This conceptual elusiveness can be further emphasized by the complexity of the relationship between spatial contexts and individual perceptions, continuously re-shaped and mediated by personal experiences, expectations and practices which are increasingly shared online. Economic indicators, which are usually employed in the measurement of the impact of cultural heritage, cannot always mirror the overlapping dimensions at the interplay between individual and collective needs, as well as social relationships, physical health, territorial assets and services[74].

69 Giffinger, Haindlmaier, Kramar 2010.
70 Jessop, Sum 2000.
71 Easterlin *et al.* 2002.
72 Fleuret, Atkinson 2007.
73 Reilly, Nolan, Monckton 2018.
74 Hollander, Renski 2015.

In the same vein, Fleuret and Atkinson[75] support the view that

> Apart from the indicators for health or perceived wellbeing, most of the indicators produced are based on objective data and all are criticized with regard to the difficulty they have in integrating the subjective dimension of wellbeing. Moreover, the analysis moves from the scale of the individual to that of society, while 'the ability to understand and judge a social situation is not instantly given to individuals: it is the result of concrete experience of their interdependencies within society' […]. Wellbeing should not therefore be frozen into a particular state for measurement, but should be considered dynamic. If its evaluation is to be based on a group of quantifiable indicators, these need to be complemented by study of the processes of social construction in order for the measurement of wellbeing to become a meaningful prerequisite to action. Establishing public policies, particularly in the field of health, should be based on a diagnosis that gives decision makers as much useful information as possible.

As a result, undoubtedly indicators are useful elements of a wider patchwork where other elements and factors should be taken into account, particularly to deconstruct place making strategies when wellbeing is mobilized also in terms of urban branding[76] and consequently positive rankings are variously "exploited" in order to promote a vibrant and safe urban imagery or to attract exogenous investors and residents, such as in the case of the province of Milan. However, new tools and methodological approaches should be used to scrutinize the overlapping and multi-layered perceptions and feelings about wellbeing, especially with reference to the impact of cultural heritage.

These multilayered perceptions, that have traditionally characterized the subjective views about wellbeing as in the relative standard theory, have recently increased in terms of amount and variety due to the growing pervasiveness of the social Web as a platform for co-creating and sharing opinions, perceptions, individual and collective narratives, included those related to wellbeing.

Drawing on Massey's investigation of the relation between geographical space and ICT's[77], we support the view that with the advent of new technologies space is not shrinking, but rather constantly reformed. Traditional geographical space is continuously reshaped to the point to create an entirely new ontic space, where a relational view of the links between time, space, technology and society should be envisaged.

From this perspective, the approach used in this work can represent an innovative framework to explore some aspects of wellbeing perceptions at the collective level with a specific focus on cultural heritage.

Although the Web is accepted by scholars as a valuable resource and source of information to advance research on a variety of fields, including urban studies, using web-retrieved data and a web-based methodology of analysis is

[75] Fleuret, Atkinson 2007, p. 112.
[76] Anttiroiko 2015.
[77] Massey 2005.

not without its challenges. As Martì *et al*.[78] highlight, although the advance in terms of collection times, data amounts, accuracy of geolocation marks and sample representativeness, online user-generated contents can lack consistency in the provision of a valuable set of geocoded data for each sample. Second, a lasting digital divide at different scales and dimensions can preclude a "carpet" sampling, since an amount of data depends on the ownership of a smartphone and access to an internet connection[79]. Thus, it can be biased by several factors ranging from socio-economic status to political contexts and age. Third, the lack of transferability and representativeness in the information retrieved from social media can represent another limitation, in addition to the huge amount of dynamically-generated data sets, consisting of billions of observations, which can pose a number of challenges for geographers.

In particular, the methodology used in this paper has some limitations. As Sánchez-Rada and Iglesias[80] highlight, S.A. poses several challenges to natural language processing, caused both by the very nature of social media platforms (such as the limited length of online opinions, for instance) or the specific features of human interactions in these kinds of media (e.g. short attention span, over-immediacy, slacktivism, use of jargon or abbreviations and so forth).

While S.A. can provide a valuable insight in evaluating the average sentiment on a given topic, it is more effective when the results extracted by the software-based investigation are compared with more traditional sources of information, such as socio-economic indicators, questionnaires and interviews, and other online methodologies, such as the online manual content analysis.

Undoubtedly some very popular social media can impact the quantity of information available to the point that several web-based case studies refer to large urbanised areas with higher demographic density and, consequently, greater amount of data, as in our case. Moreover, although not always transferrable to other spatial contexts[81], the analysis of techno-mediated narratives provides relevant details about everyday urban life[82]. Thus, in spite of the limitations, the effectiveness of new technologies and the Web as a source of data has been widely demonstrated. As Kitchin[83] highlights, big data are increasingly richer, interrelated and timely than "old" data scientists were accustomed to, to the point that they can provide more sophisticated, bigger scale data-rich analysis and understandings of a wide range of phenomena, and consequently more complex, sophisticated simulations and theories.

So, as Matni[84] puts it,

78 Martì *et al*. 2019.
79 Arribas, Bel 2014.
80 Sánchez-Rada, Iglesias 2019.
81 Goodchild 2007.
82 Sui, Goodchild 2011.
83 Kitchin 2013.
84 Matni 2015, p. 2.

although social media and its use in information seeking, searching, and retrieval is a relatively new phenomenon, the combination of its ubiquity and ease-of-access, its inherent richness of information, and its natural facilitation of social networking make it a powerful (and very low-cost) emerging way to seek, share and analyze information. The widespread popularity of social networking services on social media offers new opportunities for studying human behavior in urban settings […]. In terms of methodologies used to extract patterns that made sense, the literature emphasizes that high-specificity of search terms, high-volume of collected data, and the right clustering algorithms were essential to getting good results[85].

While the use of social media both as a tool and data source is widely established in territorial research, ranging from tourism studies[86] to e-planning research[87], it has growingly used as a theoretical-operational framework in urban research as well. The novelty of our analysis relies in the exploration of the interplay between a multifaceted phenomenon such as wellbeing and cultural heritage through an innovative methodology combining quantitative desk analysis and a web-based software in order to explore online narrative and perceptions as well as compare them with indicator-based rankings.

References / Riferimenti bibliografici

Agryzkov T., Martí P., Tortosa L., Vicent J.F. (2017), *Measuring urban activities using Foursquare data and network analysis: A case study of Murcia (Spain)*, «International Journal of Geographical Information Science», 31, 1, pp. 1-22.

Alaei A. R., Becken S., Stantic B. (2019), S*entiment analysis in tourism: capitalizing on big data*, «Journal of Travel Research», 58, 2, pp. 175-191.

Albanese V. (2017), *Il territorio mediato. Sentiment Analysis Methodology e sua applicazione al Salento*, Bologna: Bononia University Press.

Anholt S. (2010), *Places: Identity, image and reputation*, Houndmills: Palgrave MacMillan.

Antonelli F., Azzi M., Balduini M., Ciuccarelli P., Valle E. D., Larcher R. (2014), *City sensing: visualising mobile and social data about a city scale event*, Proceedings of the 2014 International Working Conference on Advanced Visual Interfaces, pp. 337-338.

Anttiroiko A.V. (2015), *City branding as a response to global intercity competition*, «Growth and Change», 46, 2, pp. 233-252.

Arribas-Bel D. (2014), *Accidental, open and everywhere: Emerging data sources for the understanding of cities*, «Applied Geography», 49, pp. 45-53.

85 Yang, Leskovec 2011; Grinberg *et al.* 2013.
86 Graziano, Albanese 2020.
87 Graziano 2017.

Arribas-Bel D., Kourtit K., Nijkamp P. and Steenbruggen J. (2015), *Cyber Cities: Social Media as a Tool for Understanding Cities*, «Applied Spatial Analysis and Policy», 8, 3, pp. 231-247.

Atkinson S. (2013), *Beyond components of wellbeing: the effects of relational and situated assemblage*, «Topoi», 32, pp. 137-44.

Atkinson S., Fuller S., Painter J. (2012), *Wellbeing and place*, Farnham: Ashgate.

Aubrecht C., Ungar J., Freire S. (2011), *Exploring the potential of volunteered geographic information for modeling spatio-temporal characteristics of urban population. A case study for Lisbon Metro using Foursquare check-in data*, Proceedings of the 7th International Conference on Virtual Cities and Territory, Lisbon: Nova University of Lisbon, pp. 57-60.

Ballas D. (2013), *What makes a 'happy city'?*, «Cities», 32, pp. 39-50.

Binkley S. (2011), *Happiness, positive psychology and the program of neoliberal governmentality*, «Subjectivity», 4, pp. 371-394.

Bollen J., Mao H., Pepe A. (2011), *Modeling public mood and emotion: Twitter sentiment and socio-economic phenomena*, Proceedings of the Fifth International Conference on Weblogs and Social Media, Barcelona: AAAI Press, pp. 450-453.

Boy J.D., Uitermark J. (2017), *Reassembling the city through Instagram*, «Transactions of the Institute of British Geographers», 42, pp. 612-624.

Braun E., Eshuis J., Klijn E.-H. (2014), *The effectiveness of place brand communication*, «Cities», 41, pp. 64-70.

Bruni L., Porta P.L., ed. (2006), *Economics and Happiness: Framing the Analysis*, Oxford: Oxford University Press.

Bruns A., Burgess J. (2011), *The use of Twitter hash-tags in the formation of ad hoc publics*, Proceedings of the 6th European Consortium for Political Research (ECPR), General Conference, pp. 1-9.

Castells M. (2009), *Communication power*, Oxford: Oxford University Press.

Ceron A., Curini L., Iacus S. (2014), Social *Media e Sentiment Analysis. L'evoluzione dei fenomeni sociali attraverso la Rete*, Milano: Springer.

Cerrone D. (2015), *A Sense of Place. Exploring the potentials and possible uses of Location Based Social Network Data for urban and transportation planning in Turku City Centre*, «Report delivered by MTÜ Spatial Intelligence Unit in collaboration with the Estonian Academy of Arts», <https://www.spinunit.eu>, 23.11.2021.

Dave K., Lawrence S., Pennock D.M. (2003), *Mining the peanut gallery: opinion extraction and semantic classification of product reviews*, International World Wide Web Conference, New York: ACM, pp. 519-528.

De Chazal J.A. (2010), *Systems approach to livability and sustainability: defining terms and mapping relationships to link desires with ecological opportunities and constraints*, «Systems Research and Behavioral Science», 27, pp. 585-597.

Easterlin R., ed. (2002), *Happiness in Economics*, United Kingdom: Edward Elgar Publishing Inc.

Ferretti V., Bottero M., Mondini G. (2014), *Decision making and cultural heritage: An application of the Multi-Attribute Value Theory for the reuse of historical buildings*, «Journal of Cultural Heritage», 15, 16, pp. 644-655.

Fleuret S. (2007), *Bien-être, santé et géographie*, in *Géographie de la santé, un panorama*, a cura di S. Fleuret, J.-P. Thouez, Paris: Editions Economica-Anthropos, pp. 72-87.

Fleuret S., Atkinson S. (2007), *Wellbeing, health and geography: a critical review and research agenda*, «The New Zealand Geographer», 63, pp. 106-29.

Fleuret S., Prugneau J. (2015), *Assessing students' wellbeing in a spatial dimension*, «The Geographical Journal», 181, 2, pp. 110-120.

Frey B.S. and Stutzer A. (2002), *Happiness and Economics: How the Economy and Institutions Affect Human Well Being*, Princeton-New Jersey: Princeton University Press.

Fujiwara D., Cornwall T., Dolan P. (2014), *Heritage and Wellbeing*, London: English Heritage.

Giffinger R., Haindlmaier G., Kramar H. (2010), *The role of rankings in growing city competition*, «Urban Research & Practice», 3, 3, pp. 299-312.

Girardin F., Vaccari A., Gerber A., Biderman A., Ratti C. (2009), *Quantifying urban attractiveness from the distribution and density of digital footprints*, «International Journal of Spatial Data Infrastructures Research», 4, pp. 175-200.

Goodchild M.F. (2007), *Citizens as sensors: the world of volunteered geography*, «GeoJournal», 69, pp. 211-221.

Gordon J. (2013), *Comparative Geospatial Analysis of Twitter Sentiment Data during the 2008 and 2012 US Presidential Elections*; retrieved from <https://core.ac.uk/download/pdf/36687937.pdf> on September, 16th, 2020.

Graham M. (2015), *Contradictory Connectivity: Spatial Imaginaries and Techno-Mediated Positionalities in Kenya's Outsourcing Sector*, «Environment and Planning A», 47, pp. 867-883.

Graham M., Hale S.A. and Gaffney D. (2014), *Where in the world are you? Geolocation and Language Identification in Twitter*, «The Professional Geographer», pp. 1-11.

Graziano T. (2017), *Citizen e-Participation in Urban Planning: Achievements and Future Challenges in a Mediterranean City*, «International Journal of E-Planning Research», 6, 3, pp. 1-18.

Graziano T., Albanese V. (2020), *Online Place Branding for Natural Heritage: Institutional Strategies and Users' Perceptions of Mount Etna (Italy)*, «Heritage», 3, pp. 1539-1559.

Greenberg M. (2008), *Branding New York: How a city in crisis was sold to the world*, New York: Routledge.

Grinberg N., Naaman M., Shaw B., Lotan G. (2013), *Extracting Diurnal Patterns of Real World Activity from Social Media*, The International AAAI Conference on Weblogs and Social Media, pp. 1-10.

Guzman P.C., Pereira Roders A.R., Colenbrander B.J.F. (2014), *Bridging the gap between urban development and cultural heritage protection*, IAIA14 Conference Proceedings Impact Assessment for Social and Economic Development 34th Annual Conference of the International Association for Impact Assessment 8-11 April 2014.

Hall T., Hubbard P. (1998), *The entrepreneurial city: Geographies of politics, regime and representation*, London: John Wiley & Sons.

Hankins K., Powers E. (2009), *The disappearance of the state from 'livable' urban spaces*, «Antipode», 41, pp. 845-866.

Harvey D. (1989), *From Managerialism to Entrepreneurialism: The Transformation in Urban Governance in Late Capitalism*, «Geografiska Annaler», Series B, 71, 1, The Roots of Geographical Change: 1973 to the Present, pp. 3-17.

Hollander J., Graves E., Levanthal T. (2014), *Using Big Data to Study Urban Sentiments: Twitter Data vs. Published Meeting Minutes*, «Working paper», Tufts University.

Hollander J.B., Renski H. (2015), *Measuring Urban Attitudes Using Twitter: An Exploratory Study*, Working Paper WP15JH1 2015, Lincoln Institute of Land Policy.

Jessop B., Sum N.L. (2000), *An entrepreneurial city in action: Hong Kong's emerging strategies in and for (inter)urban competition*, «Urban Studies», 37, pp. 2287-2313.

Kitchin R. (2013), *Big data and human geography: Opportunities, challenges and risks*, «Dialogues in Human Geography», 3, 3, pp. 262-267.

Korpela K.M. (1989), *Place identity as a product of environmental self regulation*, «Journal of environmental Psychology», 9, pp. 241-256.

Kovacs-Gyori A., Ristea A., Havas C., Resch B., Cabrera-Barona P. (2018), *#London2012: Towards Citizen-Contributed Urban Planning Through Sentiment Analysis of Twitter Data*, «Urban Planning», 3, 1, pp. 75-99.

Lane R.E. (2000), *The Loss of Happiness in Market Economies*, New Haven and London: Yale University Press.

Layard R. (2005), *Happiness: Lessons from a New Science*, New York and London: Penguin.

Lee R., Wakamiya S., K. Sumiya (2013), *Urban area characterization based on crowd behavioral lifelogs over Twitter*, «Personal and Ubiquitous Computing», 17, 4, pp. 605-620.

Liu B. (2006), *Web Data Mining; exploring hyperlinks, contents and usage data*, New York: Springer.

Mäntylä M.V., Graziotin D., Kuutila M. (2018), *The evolution of sentiment analysis – A review of research topics, venues, and top cited papers*, «Computer Science Review», 27, pp. 16-32.

Martí P., Serrano-Estrada L., Nolasco-Cirugeda A. (2019), *Social Media data: Challenges, opportunities and limitations in urban studies*, «Computers, Environment and Urban Systems», 74, pp. 161-174.

Massey D. (2005), *For Space*, London: Sage.
Matni, Z. (2015), *Using Social Media Data to Measure and Influence Community Well-Being*, «Bulletin of IEEE Technical Committee on Digital Libraries», 11, 3, <https://bulletin.jcdl.org/Bulletin/v11n3/papers/155-Matni.pdf>, last view January 8th, 2020.
Mitchell L., Frank M.R., Harris K.D., Dodds P.S., and Danforth C.M. (2013), *The geography of happiness: Connecting Twitter sentiment and expression, demographics, and objective characteristics of place*, «PloS one», 8, 5, pp. 44-17.
Nasukawa T., J. Yi (2003), *Sentiment analysis: Capturing favorability using natural language processing*, The Second International Conferences on Knowledge Capture, New York: ACM, pp. 70-77.
Pacione M. (1990), *Urban liveability: a review*, «Urban Geography», 11, pp. 1-30.
Pacione M. (2003), *Urban environmental quality and human wellbeing: a social geographical perspective*, «Landscape and Urban Planning», 65, pp. 19-30.
Pak A., Paroubek P. (2010), *Twitter as a corpus for sentiment analysis and opinion mining*, Proceedings of the International Conference on Language Resources and Evaluation, pp. 1320-1326.
Pang B., Lee L. (2008), *Opinion mining and sentiment analysis. Foundations and Trends in Information Retrieval*, Boston – Delft: Now.
Paradiso M. (2003), *Geography, Planning and the Internet: Introductory Remarks*, «Netcom», 17, pp. 129-138.
Power A., Smith K. (2016), *Heritage, health and place: The legacies of local community-based heritage conservation on social wellbeing*, «Health & Place», 39, pp. 160-167.
Quercia D., Ellis J., Capra L., Crowcroft J. (2012), *Tracking gross community happiness from tweets*, Proceedings of the ACM 2012 conference on Computer Supported, New York: ACM Digital Library, pp. 965-968.
Resch B., Summa A., Zeile P., Strube M. (2016), *Citizen-centric urban planning through extracting emotion information from Twitter in an interdisciplinary space-time-linguistics algorithm*, «Urban Planning», 1, 2, pp. 114-127.
Roberts H., Resch B., Sadler J., Chapman L., Petutschnig A., Zimmer S. (2018), *Investigating the Emotional Responses of Individuals to Urban Green Space Using Twitter Data: A Critical Comparison of Three Different Methods of Sentiment Analysis*, «Urban Planning», 3, 1, pp. 21-33.
Sagl G., Resch B., Hawelka B., Beinat E. (2013), *From social sensor data to collective human behaviour patterns – Analysing and visualising spatio-temporal dynamics in urban environments*, GI_Forum 2012: Geovizualisation, society and learning, in Jekel T., Car A., Strobl J., Griesebner G., (eds.), Berlin and Offenbach: Herbert Wichmann Verlag, pp. 54-63.
Saker M., Evans L. (2016), *Locative Media and Identity: Accumulative Technologies of the Self*, Open: Sage, 6, 3, pp. 1-10.

Sánchez-Rada, J., Iglesias C.A. (2019), *Social context in sentiment analysis: Formal definition, overview of current trends and framework for comparison*, «Information Fusion», 52, pp. 344-356.

Sayer F. (2018), *Understanding well-being: A mechanism for measuring the impact of heritage practice on well-being*, in Labrador A.M., Silberman N.A. (eds.) The Oxford Handbook of Public Heritage Theory and Practice, Oxford: Oxford University Press.

Sloan L. (2017), *Social science 'Lite'? Deriving demographic proxies from Twitter*, in *The SAGE Handbook of Social Media Research Methods*, in L. Sloan, A. Quan-Haase (eds.), London: SAGE, pp. 90-104.

Smith D.M. (1973), *The geography of social well-being in the United States: an introduction to territorial social indicators*, New York: McGraw-Hill.

Sui D., Goodchild M. (2011), *The convergence of GIS and social media: Challenges for GIScience*, «International Journal of Geographical Information Science», 25, 11, pp. 1737-1748.

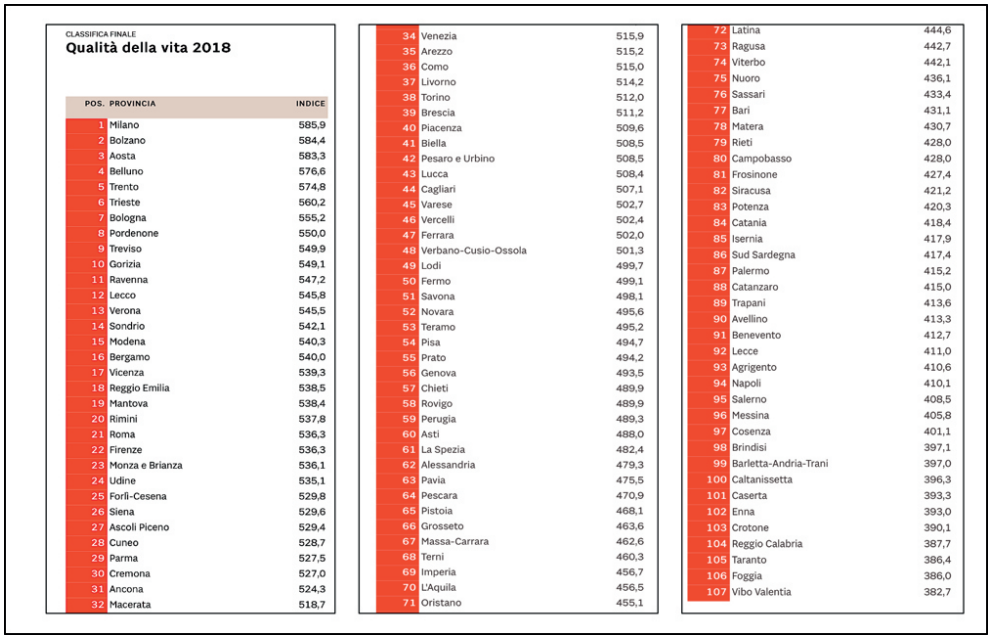
Van Kamp I., Leidelmeijer K., Marsman G. and De Hollander A. (2003), *Urban environmental quality and human well-being Towards a conceptual framework and demarcation of concepts; a literature study*, «Landscape and Urban Planning», 65, pp. 5-18.

Yang J., Leskovec J. (2011), *Patterns of Temporal Variation in Online Media Categories and Subject Descriptors*, ACM International Conference on Web Search and Data Minig; WSDM, pp. 1-13.

Yea L., Björnerb E. (2018), *Linking city branding to multi-level urban governance in Chinese mega-cities: A case study of Guangzhou*, «Cities», 80, pp. 29-37.

Zhang L., Riddhiman G., Dekhil M., Hsu M., Liu B. (2011), *Combining lexicon-based and learning-based methods for Twitter sentiment analysis*, Palo Alto, CA: HP Laboratories.

Appendice



CLASSIFICA FINALE

Qualità della vita 2018

POS.	PROVINCIA	INDICE
1	Milano	585,9
2	Bolzano	584,4
3	Aosta	583,3
4	Belluno	576,6
5	Trento	574,8
6	Trieste	560,2
7	Bologna	555,2
8	Pordenone	550,0
9	Treviso	549,9
10	Gorizia	549,1
11	Ravenna	547,2
12	Lecco	545,8
13	Verona	545,5
14	Sondrio	542,1
15	Modena	540,3
16	Bergamo	540,0
17	Vicenza	539,3
18	Reggio Emilia	538,5
19	Mantova	538,4
20	Rimini	537,8
21	Roma	536,3
22	Firenze	536,3
23	Monza e Brianza	536,1
24	Udine	535,1
25	Forlì-Cesena	529,8
26	Siena	529,6
27	Ascoli Piceno	529,4
28	Cuneo	528,7
29	Parma	527,5
30	Cremona	527,0
31	Ancona	524,3
32	Macerata	518,7
34	Venezia	515,9
35	Arezzo	515,2
36	Como	515,0
37	Livorno	514,2
38	Torino	512,0
39	Brescia	511,2
40	Piacenza	509,6
41	Biella	508,5
42	Pesaro e Urbino	508,5
43	Lucca	508,4
44	Cagliari	507,1
45	Varese	502,7
46	Vercelli	502,4
47	Ferrara	502,0
48	Verbano-Cusio-Ossola	501,3
49	Lodi	499,7
50	Fermo	499,1
51	Savona	498,1
52	Novara	495,6
53	Teramo	495,2
54	Pisa	494,7
55	Prato	494,2
56	Genova	493,5
57	Chieti	489,9
58	Rovigo	489,9
59	Perugia	489,3
60	Asti	488,0
61	La Spezia	482,4
62	Alessandria	479,3
63	Pavia	475,5
64	Pescara	470,9
65	Pistoia	468,1
66	Grosseto	463,6
67	Massa-Carrara	462,6
68	Terni	460,3
69	Imperia	456,7
70	L'Aquila	456,5
71	Oristano	455,1
72	Latina	444,6
73	Ragusa	442,7
74	Viterbo	442,1
75	Nuoro	436,1
76	Sassari	433,4
77	Bari	431,1
78	Matera	430,7
79	Rieti	428,0
80	Campobasso	428,0
81	Frosinone	427,4
82	Siracusa	421,2
83	Potenza	420,3
84	Catania	418,4
85	Isernia	417,9
86	Sud Sardegna	417,4
87	Palermo	415,2
88	Catanzaro	415,0
89	Trapani	413,6
90	Avellino	413,3
91	Benevento	412,7
92	Lecce	411,0
93	Agrigento	410,6
94	Napoli	410,1
95	Salerno	408,5
96	Messina	405,8
97	Cosenza	401,1
98	Brindisi	397,1
99	Barletta-Andria-Trani	397,0
100	Caltanissetta	396,3
101	Caserta	393,3
102	Enna	393,0
103	Crotone	390,1
104	Reggio Calabria	387,7
105	Taranto	386,4
106	Foggia	386,0
107	Vibo Valentia	382,7

Fig. 1. Wellbeing ranking for Italian Cities in 2018 (Source: "Qualità della vita 2018" retrieved from <https://lab24.ilsole24ore.com/qualita-della-vita/classifiche-complete.php>, 2019)

Fig. 2. Tag Cloud for topic: "Milan, quality of life" (Source: authors' elaboration based on App2Check)

Fig. 3. Tag Cloud for topic: "Vibo Valentia, quality of life" (Source: authors' processing based on App2Check)

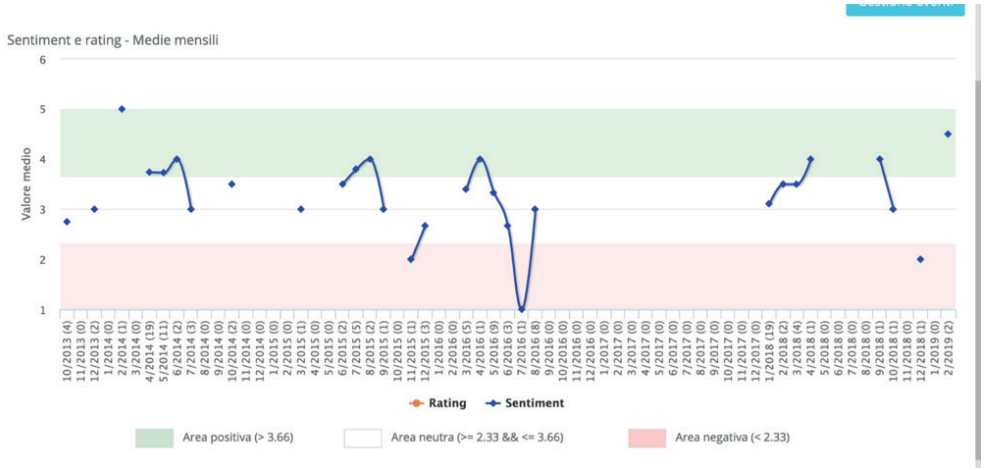


Fig. 4. Average sentiment on the topic "Vibo Valentia, quality of life" (Source: authors' processing based on App2Check)

Fig. 5. Tag Cloud for topic: "Milano, culture" (Source: authors' processing based on App2Check)

Fig. 6. Tag Cloud for topic: "Milano, culture" (Source: authors' processing based on App2Check)

Fig. 7. Tag Cloud for topic: "Vibo Valentia, culture" (Source: authors' processing based on App2Check)

Fig. 8. Average sentiment on the topic “Vibo Valentia, culture” (Source: authors’ processing based on App2Check)

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